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10/517,765	02/03/2006	Takashi Ozaki	040509	6791
23850 7590 12/01/2008 KRATZ, QUINTOS & HANSON, LLP 1420 K Street, N.W. Suite 400 WASHINGTON, DC 20005				
EXAMINER				
MCCALL SHEPARD, SONYA D				
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/517,765

**Applicant(s)**

OZAKI ET AL.

**Examiner**

SONYA D. MCCALL SHEPARD

**Art Unit**

2813

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 July 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

*This office action is in response to applicant's arguments filed on 30 July 2008.*

**Detailed Action**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over ULVAC Japan Ltd. (JP 7-109574) in view of Moriya et al. (US 6,872,636).

With regard to claim 1, ULVAC Japan Ltd., disclose a substrate treating apparatus comprising a processing chamber for processing at least one substrate, a substrate support member for supporting said at least one substrate, a prechamber for storing said substrate support member, and a control device for regulating the pressure to lower than atmospheric pressure during loading of said substrate support member

supporting said at least one substrate from said prechamber into said processing chamber (fig. 1, paragraphs 16 and 17).

ULVAC Japan Ltd fails to disclose a substrate support member that contains a support section, formed as a protrusion on the substrate support member and arranged to contact said substrate, and a receiving section installed below said support section and extending outwards from a section of the outer periphery of said support section. Moriya et al. teach an apparatus with a substrate support member 11 containing a support section, formed as a protrusion 13 on the substrate support member and arranged to contact the substrate 8 and a receiving section 12 installed below said support section and extending outwards from a section of the outer periphery of said support section (fig. 4B). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the substrate support member of Moriya et al. into the apparatus of ULVAC et al. The motivation for doing so is to reduce the adverse effect of substrate support members against the uniformity of dopant concentrations in Si wafers or the SiGe epitaxial growth of films formed on the Si wafers.

With regard to claim 2, ULVAC Japan Ltd. disclose a control device that regulates the pressure during loading so that the pressure is lower than atmospheric pressure, and higher than the pressure when once raising a vacuum within said prechamber prior to said loading (paragraphs 18, 19, 24-30).

With regard to claim 3, ULVAC Japan Ltd. disclose a control device that regulates the pressure during loading so that the pressure is lower than atmospheric pressure, and higher than the pressure during substrate processing (paragraphs 24-30).

With regard to claim 4, ULVAC Japan Ltd. disclose a control device that regulates the pressure during loading so that the pressure is between 200 Pa and 3000 Pa (paragraphs 24-30).

With regard to claim 5, ULVAC Japan Ltd. disclose a substrate treating apparatus comprising a processing chamber for processing at least one substrate, a substrate support member for supporting said at least one substrate in said processing chamber, a heater for heating said at least one substrate in said processing chamber, and depositing a thin film on said at least one substrate by CVD method, wherein said substrate support member contains a support (fig. 1, paragraphs 16 and 17).

ULVAC Japan Ltd fails to disclose a substrate support member that contains a support section, formed as a protrusion on the substrate support member and arranged to contact said substrate, and a receiving section installed below said support section and extending outwards from a section of the outer periphery of said support section. Moriya et al. teach an apparatus with a substrate support member 11 containing a support section, formed as a protrusion 13 on the substrate support member and arranged to contact the substrate 8 and a receiving section 12 installed below said support section and extending outwards from a section of the outer periphery of said support section (fig. 4B), and implicitly teaches receiving section catches the particles generated on said support section. Therefore it would have been obvious to one having

ordinary skill in the art at the time the invention was made to implement the substrate support member of Moriya et al. into the apparatus of ULVAC et al. The motivation for doing so is to reduce the adverse effect of substrate support members against the uniformity of dopant concentrations in Si wafers or the SiGe epitaxial growth of films formed on the Si wafers.

With regard to claim 6, ULVAC Japan Ltd. disclose a control member to regulate the processing temperature to 800°C or less (paragraph 28).

With regard to claim 7, ULVAC Japan Ltd. disclose a control member to regulate the processing temperature between 400°C and 800°C (paragraph 28).

With regard to claim 8, ULVAC Japan Ltd. disclose a thin film is a silicon film or a silicon nitride film (paragraph 24).

With regard to claim 9, ULVAC Japan Ltd. disclose a substrate treating apparatus comprising a processing chamber for processing at least one substrate, and a substrate support member for supporting said at least one substrate in said processing chamber, wherein said substrate support member contains a support section to be contacted said substrate, and a receiving section formed below said support section and extending outwards from a section of the outer periphery of said support section (fig. 1).

ULVAC Japan Ltd fails to disclose a substrate support member that contains a support section, formed as a protrusion on the substrate support member and arranged to contact said substrate, and a receiving section installed below said support section and extending outwards from a section of the outer periphery of said support section.

Moriya et al. teach an apparatus with a substrate support member 11 containing a support section, formed as a protrusion 13 on the substrate support member and arranged to contact the substrate 8 and a receiving section 12 installed below said support section and extending outwards from a section of the outer periphery of said support section (fig. 4B). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the substrate support member of Moriya et al. into the apparatus of ULVAC et al. The motivation for doing so is to reduce the adverse effect of substrate support members against the uniformity of dopant concentrations in Si wafers or the SiGe epitaxial growth of films formed on the Si wafers.

Moriya fails to teach the receiving section extends between 6mm and 15mm from a section of the outer periphery of said support section, however it would have been obvious to one having ordinary skill in the art at the time the invention was made to extend the receiving section between 6mm and 15mm from a section of the outer periphery of said support section, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233 CCPA 1955.

With regard to claim 10, ULVAC Japan Ltd. disclose a substrate treating apparatus comprising a processing chamber for processing at least one substrate, and a substrate support member for supporting said at least one substrate in said processing chamber (fig. 1).

ULVAC Japan Ltd fails to disclose a substrate support member that contains a main section, support section, formed as a protrusion on the substrate support member and arranged to contact said substrate, and a receiving section installed below said support section and extending outwards from a section of the outer periphery of said support section and said main section, said support section, and said receiving section are integrated into one piece. Moriya et al. teach an apparatus with a substrate support member 11 containing a support section, formed as a protrusion 13 on the substrate support member and arranged to contact the substrate 8 and a receiving section 12 installed below said support section and extending outwards from a section of the outer periphery of said support section and said main section, said support section, and said receiving section are integrated into one piece (fig. 4B). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the substrate support member of Moriya et al. into the apparatus of ULVAC et al. The motivation for doing so is to reduce the adverse effect of substrate support members against the uniformity of dopant concentrations in Si wafers or the SiGe epitaxial growth of films formed on the Si wafers.

With regard to claim 11, ULVAC Japan Ltd. disclose a manufacturing method for a semiconductor device, said method comprising the steps of: supporting at least one substrate in a substrate support member; loading said substrate support member supporting said at least one substrate at a pressure lower than atmospheric pressure from a prechamber into a processing chamber; processing said substrate supported by said substrate support member in said processing chamber; and unloading said



substrate support member supporting said substrate from said processing chamber (fig. 1, paragraphs 24-30).

ULVAC Japan Ltd fails to disclose a substrate support member that contains a support section, formed as a protrusion on the substrate support member and arranged to contact said substrate, and a receiving section installed below said support section and extending outwards from a section of the outer periphery of said support section. Moriya et al. teach an apparatus with a substrate support member 11 containing a support section, formed as a protrusion 13 on the substrate support member and arranged to contact the substrate 8 and a receiving section 12 installed below said support section and extending outwards from a section of the outer periphery of said support section (fig. 4B). Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the substrate support member of Moriya et al. into the apparatus of ULVAC et al. The motivation for doing so is to reduce the adverse effect of substrate support members against the uniformity of dopant concentrations in Si wafers or the SiGe epitaxial growth of films formed on the Si wafers.

With regard to claim 12, ULVAC Japan Ltd. disclose a pressure in a loading step is higher than the pressure when once raising a vacuum in the prechamber prior to loading, and is lower than the atmospheric pressure (paragraphs 24-30).

With regard to claim 13, ULVAC Japan Ltd. disclose a pressure in a loading step is higher than the pressure during a substrate processing and is lower than the atmospheric pressure (paragraphs 24-30).

With regard to claim 14, ULVAC Japan Ltd. disclose a pressure in a loading step is between 200 Pa and 3000 Pa (paragraphs 24-30).

With regard to claim 15, ULVAC Japan Ltd. disclose a manufacturing method for a semiconductor device, said method comprising the steps of: loading at least one substrate into a processing chamber; supporting said at least one substrate by a substrate support member; depositing a thin film by CVD method on said at least one substrate supported by said substrate support member in said processing chamber; and unloading said substrate from said processing chamber (paragraph 16, 17 and 24-30).

ULVAC Japan Ltd fails to disclose a substrate support member that contains a support section, formed as a protrusion on the substrate support member and arranged to contact said substrate, and a receiving section installed below said support section and extending outwards from a section of the outer periphery of said support section. Moriya et al. teach an apparatus with a substrate support member 11 containing a support section, formed as a protrusion 13 on the substrate support member and arranged to contact the substrate 8 and a receiving section 12 installed below said support section and extending outwards from a section of the outer periphery of said support section (fig. 4B), and implicitly teaches a receiving section of the outer periphery of said support section for catching particles generated in said support section. Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to implement the substrate support member of Moriya et al. into the apparatus of ULVAC et al. The motivation for doing so is to reduce the adverse

effect of substrate support members against the uniformity of dopant concentrations in Si wafers or the SiGe epitaxial growth of films formed on the Si wafers.

With regard to claim 16, ULVAC Japan Ltd. disclose a temperature in a depositing step is 800°C or less (paragraphs 24-30).

With regard to claim 17, ULVAC Japan Ltd. disclose a temperature in a depositing step is between 400°C and 800°C (paragraphs 24-30).

With regard to claim 18, ULVAC Japan Ltd. disclose a thin film deposited on a substrate in a depositing step is a silicon film or a silicon nitride film (paragraphs 24-30).

### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to SONYA D. MCCALL SHEPARD whose telephone number is (571)272-9801. The examiner can normally be reached on Monday - Friday 8:00-4:30 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Supervisory Patent Examiner, Art  
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/S. D. M./

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